

09/423100

**TOWNSEND**  
and  
**TOWNSEND**  
and  
**CREW**  
LLP

Palo Alto, California  
Tel 650 326-2400

✓ Walnut Creek, California  
Tel 925 472-5000

San Diego, California  
Tel 858 350-6100

Denver, Colorado  
Tel 303 571-4000

Seattle, Washington  
Tel 206 467-9600

San Francisco

Two Embarcadero Center  
Elghth Floor  
San Francisco  
California 94111-3834  
Tel 415 576-0200  
Fax 415 576-0300

## FACSIMILE COVER SHEET

Date: <b>April 06, 2005</b>	Client & Matter Number: <b>020167-000120US</b>	No. Pages (including this one): <b>16</b>
To: <b>Kay D. Pinkney Office of Patent Publication</b>	At Fax Number: <b>(703) 308-6642</b>	Confirmation Phone Number: <b>(703) 305-0333 ext. 144</b>

From: Frank J. Mycroft (2010)

**Message:**

Dear Ms. Pinkney,

Thank you for your telephone message. Attached is the Sequence Listing filed May 30, 2002, with related documentation. Please let us know if you require anything further.

Sincerely,

*Kim Rosa*  
Kim Rosa

Secretary to Frank J. Mycroft

Original Will:	BE SENT BY MAIL	BE SENT BY FEDEX/OVERNIGHT COURIER	BE SENT BY MESSENGER	X	NOT BE SENT
----------------	-----------------	------------------------------------	----------------------	---	-------------

Faxed: Return to: Kimberly A. Rosa - (3001)

If you have problems with reception please call Fax Services at extension 4659

**Important**

This message is intended only for the use of the individual or entity to which it is addressed and may contain information that is privileged, confidential, and/or exempt from disclosure by applicable law or court order. If the reader of this message is not the intended recipient, or the employee or agent responsible for delivering the message to the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone and return the original message to us at the above address via the United States Postal Service. Thank you.

60462012 v1

2 of 17

TO THE U.S. PATENT AND TRADEMARK OFFICE - BOX SEQUENCE  
Please stamp the date of receipt of the following document(s)

RE: Zhong-Ru Gan

TITLE OF DOCUMENT(S):

Transmittal Form w/Certificate of Mailing; Fee Transmittal (in duplicate); Petition for Extension of Time w/Certificate of Mailing (in duplicate); Communication Under 37 CFR §§ 1.821-1.825 and Amendment with paper copy and computer readable copy of Substitute Sequence Listing w/Certificate of Mailing

Application No. 09/423,100

File No. 020167-000120US

Date Due March 30, 2002; May 30, 2002 w/2 mo. ext.

Date Mailed May 30, 2002

Attny/Secty. FJM/mmm

WC 9042019 v1

TO THE U.S. PATENT AND TRADEMARK OFFICE - BOX SEQUENCE  
Please stamp the date of receipt of the following document(s).

RE: Zhong-Ru Gan

TITLE OF DOCUMENT(S):

Transmittal Form w/Certificate of Mailing; Fee Transmittal (in duplicate); Petition for Extension of Time w/Certificate of Mailing (in duplicate); Communication Under 37 CFR §§ 1.821-1.825 and Amendment with paper copy and computer readable copy of Substitute Sequence Listing w/Certificate of Mailing

Application No. 09/423,100

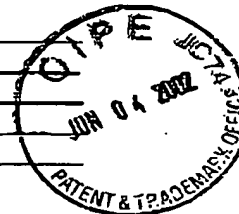
File No. 020167-000120US

Date Due March 30, 2002; May 30, 2002 w/2 mo. ext.

Date Mailed May 30, 2002

Attny/Secty. FJM/mmm

WC 9042019 v1



JUL 13 2002

30417

Please type a plus sign (+) inside this box → ☒

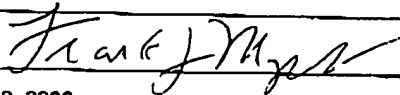
PTO/SB/21 (08-00)

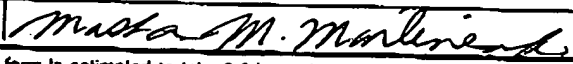
Approved for use through 10/31/2002. OMB 0651-0031

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

<b>TRANSMITTAL FORM</b> (to be used for all correspondence after initial filing)	Application Number	09/423,100
	Filing Date	October 29, 1999
	First Named Inventor	Gan, Zhong-Ru
	Group Art Unit	1647
	Examiner Name	Saoud, Christine J.
Total Number of Pages in This Submission	Attorney Docket Number	020167-000120US

ENCLOSURES (check all that apply)		
<input checked="" type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment / Response <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input checked="" type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Assignment Papers (for an Application) <input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition Routing Slip (PTO/SB/69) and Accompanying Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s)	<input type="checkbox"/> After Allowance Communication to Group <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to Group (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below): COMMUNICATION UNDER 37 C.F.R. §§ 1.821-1.825 AND AMENDMENT w/paper copy and computer readable copy of Substitute Sequence Listing; and Return Postcard
Remarks		The Commissioner is authorized to charge any additional fees to Deposit Account 20-1430.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT	
Firm and Individual name	Townsend and Townsend and Crew LLP Frank J. Mycroft Reg. No. 46,946
Signature	
Date	May 30, 2002

CERTIFICATE OF MAILING	
I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231 on this date: May 30, 2002	
Typed or printed name	Masha M. Marthenko
Signature	 Date May 30, 2002

Burden Hour Statement: This form is estimated to take 0.2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

WC 9042018 v1

40+17

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# FEE TRANSMITTAL for FY 2002

Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$) 400

Complete if Known

Application Number 09/423,100

Filing Date October 29, 1999

First Named Inventor Gan, Zhong-Ru

Examiner Name Saoud, Christine J.

Group Art Unit 1647

Attorney Docket No. 020167-000120US

## METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit Card ☐ Money Order ☐ Other ☐ None

☒ Deposit Account

Deposit  
Account  
Number

20-1430

Deposit  
Account  
Name

Townsend and Townsend and  
Crew LLP

The Commissioner is authorized to: (check all that apply)

☒ Charge fee(s) indicated below ☐ Credit any overpayments  
☐ Charge any additional fee(s) during the pendency of this application  
☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.

## FEE CALCULATION

### 1. BASIC FILING FEE

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
101	740	201	370	Utility filing fee	
106	330	206	165	Design filing fee	
107	510	207	255	Plant filing fee	
108	740	208	370	Reissue filing fee	
114	160	214	80	Provisional filing fee	

SUBTOTAL (1)

(\$)

### 2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims	Extra Claims	Fee from below	Fee Paid
Independent Claims	-20**	X	
Multiple Dependent	-3**	X	
		X	

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
103	18	203	9	Claims in excess of 20	
102	84	202	42	Independent claims in excess of 3	
104	280	204	140	Multiple dependent claim, if not paid	
109	84	209	42	** Reissue independent claims over original patent	
110	18	210	9	** Reissue claims in excess of 20 and over original patent	

SUBTOTAL (2)

(\$)

\*\*or number previously paid, if greater; For Reissues, see above

## J. ADDITIONAL FEES

FEE CALCULATION (continued)

Large Entity Small Entity

Fee Code	Fee (\$)	Fee Code	Fee (\$)	Fee Description	Fee Paid
105	130	205	65	Surcharge - late filing fee or oath	
127	50	227	25	Surcharge - late provisional filing fee or cover sheet	
139	130	139	130	Non-English specification	
147	2,520*	147	2,520*	For filing a request for reexamination	
112	920*	112	920*	Requesting publication of SIR prior to Examiner action	
113	1,840*	113	1,840*	Requesting publication of SIR after Examiner action	
115	110	215	55	Extension for reply within first month	
116	400	216	200	Extension for reply within second month	400
117	920	217	460	Extension for reply within third month	
118	1,440	218	720	Extension for reply within fourth month	
128	1,960	228	980	Extension for reply within fifth month	
119	320	219	160	Notice of Appeal	
120	320	220	160	Filing a brief in support of an appeal	
121	280	221	140	Request for oral hearing	
138	1,510	138	1,510	Petition to institute a public use proceeding	
140	110	240	55	Petition to revive - unavoidable	
141	1,280	241	640	Petition to revive - unintentional	
142	1,280	242	640	Utility issue fee (or reissue)	
143	450	243	230	Design issue fee	
144	820	244	310	Plant issue fee	
122	130	122	130	Petitions to the Commissioner	
123	50	123	50	Petitions related to provisional applications	
126	180	126	180	Submission of Information Disclosure Sheet	
581	40	581	40	Recording each patent assignment per property (lines number of properties)	
146	740	246	370	Filing a submission after final rejection (37 CFR § 1.129(a))	
149	740	249	370	For each additional invention to be examined (37 CFR § 1.128(b))	
179	740	279	370	Request for Continued Examination (RCE)	
169	900	169	900	Request for expedited examination of a design application	

Other fee (specify):

\*Reduced by Basic Filing Fee Paid

SUBTOTAL (3)

(\$400)

## SUBMITTED BY

Name (Print/Type)

Frank J. Mycroft

Registration No. (Attorney/Agent)

46,848

Complete (if applicable)

Telephone

925-472-5000

Signature

*Frank J. Mycroft*

Date

May 30, 2002

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

Burden Hour Statement: This form is estimated to take 0.2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231. Y

50417

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Approved by U.S. Patent and Trademark C

PTO/SB/22 (10-00)  
through 10/31/2002. OMB 0651-0031  
U.S. DEPARTMENT OF COMMERCE

# PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)

Docket Number (Optional)  
020167-000120US

In re Application of GAN, Zhong-Ru

Application Number 09/423,100

Filed October 29, 1999

For CHAPERONE MEDIATED PROTEIN FOLDING METHOD

Group Art Unit  
1647

Examiner  
Saoud, Christine J.

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above identified application.

The requested extension and appropriate non-small-entity fee are as follows (check time period desired):

- ☐ One month (37 CFR 1.17(a)(1)) \$
- ☒ Two months (37 CFR 1.17(a)(2)) \$400
- ☐ Three months (37 CFR 1.17(a)(3)) \$
- ☐ Four months (37 CFR 1.17(a)(4)) \$
- ☐ Five months (37 CFR 1.17(a)(5)) \$

☐ Applicant claims small entity status. See 37 CFR 1.27. Therefore, the fee amount shown above is reduced by one-half, and the resulting fee is:

☐ A check in the amount of the fee is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Commissioner has already been authorized to charge fees in this application to a Deposit Account.

☒ The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 20-1430.

I have enclosed a duplicate copy of this sheet.

I am the ☐ applicant/inventor.

☐ assignee of record of the entire interest. See 37 CFR 3.71

Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96).

☒ attorney or agent of record.

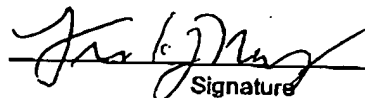
☐ attorney or agent under 37 CFR 1.34(a).

Registration number (if acting under 37 CFR 1.34(a), \_\_\_\_\_)

**WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.**

May 30, 2002

Date

  
Signature

Frank J. Mycroft, Reg. No. 46,946

Typed or printed name

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below.

☒ \*Total of 2 forms are submitted.

Burden Hour Statement: This form is estimated to take 0.1 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to:

PATENT  
Attorney Docket No.: 020167-000120US

U.S. Patent and Trademark Office  
Box SEQUENCE  
P.O. Box 2327  
Arlington, VA 22202

On May 30, 2002

TOWNSEND and TOWNSEND and CREW LLP

By: Masha M. Martinenko  
Masha M. Martinenko

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of:

GAN, Zhong-Ru

Application No.: 09/423,100

Filed: October 29, 1999

For: CHAPERONE MEDIATED  
PROTEIN FOLDING METHOD

Examiner: Saoud, Christine J.

Art Unit: 1647

COMMUNICATION UNDER

37 C.F.R. §§ 1.821-1.825

AND

AMENDMENT

U.S. Patent and Trademark Office  
Box SEQUENCE  
P.O. Box 2327  
Arlington, VA 22202

Sir:

In response to the Notice to Comply with Requirements for Patent Applications Containing Nucleotide Sequence and/or Amino Acid Sequence Disclosures, 37 C.F.R. §§ 1.821-1.825, that accompanied the Examiner's Communication mailed February 28, 2002, a copy of which is attached hereto, Applicant submits herewith the required paper copy and computer readable copy of the Substitute Sequence Listing. Please amend the specification in adherence with 37 C.F.R. §§ 1.821-1.825 as follows.

GAN, Zhong-Ru  
Application No.: 09/423,100  
Page 2

PATENT

**In the Specification:**

Please replace the paragraph beginning at page 16, line 26, with the following:

--In a preferred embodiment, the present invention provides a chimeric protein described above, wherein the second peptidyl fragment consists of the amino acid sequence of SEQ ID NO:3.--

Please replace the paragraph beginning at page 25, line 23, with the following:

--In a preferred embodiment, the present invention provides a process for obtaining a correctly folded insulin-precursor-containing chimeric protein described above, wherein the cleavable amino acid residue is an Arg or a Lys residue. Also preferably, the cleavable amino acid residues consist of the amino acid sequence of SEQ ID NO:3.--

Please replace the paragraph beginning at page 29, line 30, with the following:

--A DNA fragment encoding the hGH-mini-proinsulin consisting of the amino acid sequence of SEQ ID NO:6 was chemically synthesized according to the procedure disclosed in Gan et al., *Gene*, 1989, 79:159-166. A 5' Cla I site and a 3' Hind III site were included in the synthesized DNA fragment. Briefly, a fragment from the 5' Cla I to 3' Kpn I, which cuts the nucleotide sequence encoding amino acid residues 51 and 52 of the SEQ ID NO:6, and a fragment from 5' Kpn I to 3' Hind III were chemically synthesized and subcloned into a pUC18 vector, respectively. Subsequently, the DNA fragment encoding the entire amino acid sequence of SEQ ID NO:6 was subcloned into a modified pATH2 vector such that expression of the hGH-mini-proinsulin was under the control of a Trp promoter and a SD sequence. The resulting vector, pZRhi-1 (Figure 2) was used to express the hGH-mino proinsulin fusion protein.--

GAN, Zhong-Ru  
Application No.: 09/423,100  
Page 3

PATENT

Please cancel the present "SEQUENCE LISTING", pages 34-39, and insert therefor the accompanying paper copy of the Substitute Sequence Listing, page numbers 1 to 5, at the end of the application. Cancel the page numbers for the Claims and Abstract and renumber, accordingly.

REMARKS

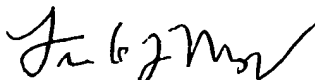
Applicant requests entry of this amendment in adherence with 37 C.F.R. §§1.821 to 1.825. This amendment is accompanied by a floppy disk containing the above named sequences, SEQ ID NOS:1-7, in computer readable form, and a paper copy of the sequence information which has been printed from the floppy disk.

The information contained in the computer readable disk was prepared through the use of the software program "PatentIn" and is identical to that of the paper copy.

Attached hereto is a marked-up version of the changes made to the Specification by the current Amendment. The attached pages are captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE."

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 415-576-0200.

Respectfully submitted,

  
Frank J. Mycroft  
Reg. No. 46,946

TOWNSEND and TOWNSEND and CREW LLP  
Two Embarcadero Center, 8<sup>th</sup> Floor  
San Francisco, California 94111-3834  
Tel: (415) 576-0200  
Fax: (415) 576-0300  
FJM:dmw

905/7



GAN, Zhong-Ru  
Application No.: 09/423,100  
Page 4

PATENT

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**In the Specification:**

Paragraph beginning at line 30 of page 16 has been amended as follows:

In a preferred embodiment, the present invention provides a chimeric protein described above, wherein the second peptidyl fragment consists of the amino acid sequence of SEQ ID NO:3 ~~SEQ ID:3~~.

Paragraph beginning at line 26 of page 25 has been amended as follows:

In a preferred embodiment, the present invention provides a process for obtaining a correctly folded insulin-precursor-containing chimeric protein described above, wherein the cleavable amino acid residue is an Arg or a Lys residue. Also preferably, the cleavable amino acid residues consist of the amino acid sequence of SEQ ID NO:3 ~~SEQ ID:3~~.

Paragraph beginning at line 30 of page 29 has been amended as follows:

A DNA fragment encoding the hGH-mini-proinsulin consisting of the amino acid sequence of SEQ ID NO:6 was chemically synthesized according to the procedure disclosed in Gan et al., *Gene*, 1989, 79:159-166. A 5' Cla I site and a 3' Hind III site were included in the synthesized DNA fragment. Briefly, a fragment from the 5' Cla I to 3' Kpn I, which cuts the nucleotide sequence encoding amino acid residues 51 and 52 of the SEQ ID NO:6, and a fragment from 5' Kpn I to 3' ~~3'~~ Hind III were chemically synthesized and subcloned into a pUC18 vector, respectively. Subsequently, the DNA fragment encoding the entire amino acid sequence of SEQ ID NO:6 ~~SEQ ID:6~~

GAN, Zhong-Ru  
Application No.: 09/423,100  
Page 5

PATENT

was subcloned into a modified pATH2 vector such that expression of the hGH-mini-proinsulin was under the control of a Trp promoter and a SD sequence. The resulting vector, pZRhi-1 (Figure 2) was used to express the hGH-mino proinsulin fusion protein.

SF 1340963 v1

110417

Applica n No.: **09/423,100****NOTICE TO COMPLY WITH REQUIREMENTS FOR PATENT APPLICATIONS CONTAINING NUCLEOTIDE SEQUENCE AND/OR AMINO ACID SEQUENCE DISCLOSURES**

Applicant must file the items indicated below within the time period set the Office action to which the Notice is attached to avoid abandonment under 35 U.S.C. § 133 (extensions of time may be obtained under the provisions of 37 CFR 1.136(a)).

The nucleotide and/or amino acid sequence disclosure contained in this application does not comply with the requirements for such a disclosure as set forth in 37 C.F.R. 1.821 - 1.825 for the following reason(s):

- ☒ 1. This application clearly fails to comply with the requirements of 37 C.F.R. 1.821-1.825. Applicant's attention is directed to the final rulemaking notice published at 55 FR 18230 (May 1, 1990), and 1114 OG 29 (May 15, 1990). If the effective filing date is on or after July 1, 1998, see the final rulemaking notice published at 63 FR 29620 (June 1, 1998) and 1211 OG 82 (June 23, 1998).
- ☐ 2. This application does not contain, as a separate part of the disclosure on paper copy, a "Sequence Listing" as required by 37 C.F.R. 1.821(c).
- ☒ 3. A copy of the "Sequence Listing" in computer readable form has not been submitted as required by 37 C.F.R. 1.821(e).
- ☐ 4. A copy of the "Sequence Listing" in computer readable form has been submitted. However, the content of the computer readable form does not comply with the requirements of 37 C.F.R. 1.822 and/or 1.823, as indicated on the attached copy of the marked -up "Raw Sequence Listing."
- ☐ 5. The computer readable form that has been filed with this application has been found to be damaged and/or unreadable as indicated on the attached CRF Diskette Problem Report. A Substitute computer readable form must be submitted as required by 37 C.F.R. 1.825(d).
- ☐ 6. The paper copy of the "Sequence Listing" is not the same as the computer readable form of the "Sequence Listing" as required by 37 C.F.R. 1.821(e).
- ☐ 7. Other: \_\_\_\_\_

**Applicant Must Provide:**

- ☒ An *initial* or substitute **computer readable form (CRF) copy** of the "Sequence Listing".
- ☒ An initial or **substitute paper copy** of the "Sequence Listing", as well as an amendment directing its entry into the specification.
- ☒ A **statement** that the content of the paper and computer readable copies are the same and, where applicable, include no new matter, as required by 37 C.F.R. 1.821(e) or 1.821(f) or 1.821(g) or 1.825(b) or 1.825(d).

For questions regarding compliance to these requirements, please contact:

For Rules Interpretation, call (703) 308-4216

For CRF Submission Help, call (703) 308-4212

PatentIn Software Program Support

Technical Assistance.....703-287-0200

To Purchase PatentIn Software.....703-306-2600

**PLEASE RETURN A COPY OF THIS NOTICE WITH YOUR REPLY**

09/423108

## SEQUENCE LISTING

## (1) GENERAL INFORMATION:

- (i) APPLICANT: Gan, Zhong Ru
- (ii) TITLE OF INVENTION: Chaperone Mediated Protein Folding Method
- (iii) NUMBER OF SEQUENCES: 7
- (iv) CORRESPONDENCE ADDRESS:
  - (A) ADDRESSEE: Townsend and Townsend and Crew LLP
  - (B) STREET: Two Embarcadero Center, Eighth Floor
  - (C) CITY: San Francisco
  - (D) STATE: California
  - (E) COUNTRY: USA
  - (F) ZIP: 94111-3834
- (v) COMPUTER READABLE FORM:
  - (A) MEDIUM TYPE: Floppy disk
  - (B) COMPUTER: IBM PC compatible
  - (C) OPERATING SYSTEM: PC-DOS/MS-DOS
  - (D) SOFTWARE: PatentIn Release #1.0, Version #1.30
- (vi) CURRENT APPLICATION DATA:
  - (A) APPLICATION NUMBER: US 09/423,100
  - (B) FILING DATE: 11-DEC-2000
  - (C) CLASSIFICATION:
- (vii) PRIOR APPLICATION DATA:
  - (A) APPLICATION NUMBER: WO PCT/CN98/00052
  - (B) FILING DATE: 31-MAR-1998
- (viii) ATTORNEY/AGENT INFORMATION:
  - (A) NAME: Mycroft, Frank J
  - (B) REGISTRATION NUMBER: 46,946
  - (C) REFERENCE/DOCKET NUMBER: 020167-000120US

## (2) INFORMATION FOR SEQ ID NO:1:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 49 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS:
  - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: protein
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:  

Met	Phe	Pro	Thr	Ile	Pro	Leu	Ser	Arg	Leu	Phe	Asp	Asn	Ala	Met	Leu
1					5				10					15	
Arg	Ala	His	Arg	Leu	His	Gln	Leu	Ala	Phe	Asp	Thr	Tyr	Gln	Glu	Phe
		20				25							30		

13.817

09/423100

Glu Glu Ala Tyr Ile Pro Lys Glu Gln Lys Tyr Ser Phe Leu Gln Asn  
 35 40 45

Pro

(2) INFORMATION FOR SEQ ID NO:2:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 92 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS:
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

Met Phe Pro Thr Ile Pro Leu Ser Arg Leu Phe Asp Asn Ala Met Leu  
 1 5 10 15  
 Arg Ala His Arg Leu His Gln Leu Ala Phe Asp Thr Tyr Gln Glu Phe  
 20 25 30  
 Glu Glu Ala Tyr Ile Pro Lys Glu Gln Lys Tyr Ser Phe Leu Gln Asn  
 35 40 45  
 Pro Gln Thr Ser Leu Ser Phe Ser Glu Ser Ile Pro Thr Pro Ser Asn  
 50 55 60  
 Arg Glu Glu Thr Gln Gln Lys Ser Asn Leu Glu Leu Leu Arg Ile Ser  
 65 70 75 80  
 Leu Leu Leu Ile Gln Ser Trp Leu Glu Pro Val Gln  
 85 90

(2) INFORMATION FOR SEQ ID NO:3:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 6 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS:
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

Leu Gly Thr Gly Pro Arg  
 1 5

140617

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## (2) INFORMATION FOR SEQ ID NO:4:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 86 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS:
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: protein

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

Phe Val Asn Gln His Leu Cys Gly Ser His Leu Val Glu Ala Leu Tyr  
1 5 10 15

Leu Val Cys Gly Glu Arg Gly Phe Phe Tyr Thr Pro Lys Thr Arg Arg  
20 25 30

Glu Ala Glu Asp Leu Gln Val Gly Gln Val Glu Leu Gly Gly Gly Pro  
35 40 45

Gly Ala Gly Ser Leu Gln Pro Leu Ala Leu Glu Gly Ser Leu Gln Lys  
50 55 60

Arg Gly Ile Val Glu Gln Cys Cys Thr Ser Ile Cys Ser Leu Tyr Gln  
65 70 75 80

Leu Glu Asn Tyr Cys Asn  
85

## (2) INFORMATION FOR SEQ ID NO:5:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 52 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS:
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: protein

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

Phe Val Asn Gln His Leu Cys Gly Ser His Leu Val Glu Ala Leu Tyr  
1 5 10 15

Leu Val Cys Gly Glu Arg Gly Phe Phe Tyr Thr Pro Lys Thr Arg Gly  
20 25 30

Ile Val Glu Gln Cys Cys Thr Ser Ile Cys Ser Leu Tyr Gln Leu Glu  
35 40 45

Asn Tyr Cys Asn  
50

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## (2) INFORMATION FOR SEQ ID NO:6:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 107 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS:
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: protein

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

```

Met Phe Pro Thr Ile Pro Leu Ser Arg Leu Phe Asp Asn Ala Met Leu
1           5           10           15
Arg Ala His Arg Leu His Gln Leu Ala Phe Asp Thr Tyr Gln Glu Phe
          20           25           30
Glu Glu Ala Tyr Ile Pro Lys Glu Gln Lys Tyr Ser Phe Leu Gln Asn
          35           40           45
Pro Leu Gly Thr Gly Pro Arg Phe Val Asn Gln His Leu Cys Gly Ser
          50           55           60
His Leu Val Glu Ala Leu Tyr Leu Val Cys Gly Glu Arg Gly Phe Phe
65           70           75           80
Tyr Thr Pro Lys Thr Arg Gly Ile Val Glu Gln Cys Cys Thr Ser Ile
          85           90           95
Cys Ser Leu Tyr Gln Leu Glu Asn Tyr Cys Asn
          100          105

```

## (2) INFORMATION FOR SEQ ID NO:7:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 150 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS:
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: protein

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

```

Met Phe Pro Thr Ile Pro Leu Ser Arg Leu Phe Asp Asn Ala Met Leu
1           5           10           15
Arg Ala His Arg Leu His Gln Leu Ala Phe Asp Thr Tyr Gln Glu Phe
          20           25           30
Glu Glu Ala Tyr Ile Pro Lys Glu Gln Lys Tyr Ser Phe Leu Gln Asn
          35           40           45
Pro Gln Thr Ser Leu Ser Phe Ser Glu Ser Ile Pro Thr Pro Ser Asn
          50           55           60

```

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Arg Glu Glu Thr Gln Gln Lys Ser Asn Leu Glu Leu Leu Arg Ile Ser  
65 70 75 80

Leu Leu Leu Ile Gln Ser Trp Leu Glu Pro Val Gln Leu Gly Thr Gly  
85 90 95

Pro Arg Phe Val Asn Gln His Leu Cys Gly Ser His Leu Val Glu Ala  
100 105 110

Leu Tyr Leu Val Cys Gly Glu Arg Gly Phe Phe Tyr Thr Pro Lys Thr  
115 120 125

Arg Gly Ile Val Glu Gln Cys Cys Thr Ser Ile Cys Ser Leu Tyr Gln  
130 135 140

Leu Glu Asn Tyr Cys Asn  
145 150

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